

Result	%		Query				ID	Description
No.	Score	Match	Length	DB				
1	1566	100.0	300	1	GGPP_HUMAN		Q95749	h geranylge
2	1516	96.8	294	1	GGPP_BOVIN		P56966	b geranylge
3	1476	94.3	300	1	GGPP_MOUSE		Q9wtn0	m geranylge
4	797.5	50.9	428	1	GGPP_NEUCR		P24322	n geranylge
5	754.5	48.2	418	1	GGPP_GIBFU		Q92236	g geranylge
6	292	18.6	327	1	IDSA_METJA		Q58270	methanococc
7	233.5	14.9	324	1	IDSA_METTM		Q53479	methanobact
8	231.5	14.8	325	1	IDSA_METTH		O26156	methanobact
9	217	13.9	323	1	PREA_CYAPA		P31171	cyanophora
10	211.5	13.5	332	1	GGPP_SULSO		P95999	sulfolobus
11	208.5	13.3	323	1	ISPB_ECOLI		P19641	escherichia
12	207	13.2	330	1	GGPP_SULAC		P39464	sulfolobus
13	195	12.5	348	1	HEP2_BACSU		P31114	bacillus su
14	184	11.7	323	1	PREA_CYACA		Q9tls1	cyanidium c
15	182.5	11.7	329	1	ISPB_HAEIN		P44916	haemophilus
16	173	11.0	320	1	HEP2_BACST		P55785	bacillus st
17	165	10.5	323	1	PREA_SYNY3		P72580	synechocyst
18	163.5	10.4	295	1	ISPA_HAEIN		P45204	haemophilus
19	163.5	10.4	323	1	PREA_PORPU		P51268	porphyra pu
20	159	10.2	272	1	ISPA_BACSU		P54383	bacillus su
21	158	10.1	300	1	CRTE_CYAPA		P48368	cyanophora
22	154.5	9.9	297	1	ISPA_BACST		Q08291	bacillus st
23	150.5	9.6	369	1	GGPP_CAPAN		P80042	capsicum an
24	149	9.5	378	1	DPS_SCHPO		O43091	schizosacch
25	148	9.5	299	1	ISPA_ECOLI		P22939	escherichia
26	144	9.2	371	1	GGPP_ARATH		P34802	arabidopsis
27	142.5	9.1	366	1	GGPP_SINAL		Q43133	sinapis alb
28	141.5	9.0	262	1	ISPA_AQUAE		O66952	aquifex aeo
29	140.5	9.0	347	1	FPPS_SCHPO		O14230	schizosacch
30	138	8.8	357	1	GGPP_CATRO		Q42698	catharanthu
31	137	8.7	353	1	FPPS_HUMAN		P14324	homo sapien
32	136.5	8.7	347	1	FPPS_GIBFU		Q92235	gibberella
33	133.5	8.5	291	1	ISPA_MICLU		O66126	micrococcus
34	132.5	8.5	353	1	FPPS_RAT		P05369	r farnesyl
35	132	8.4	288	1	CRTE_RHOSH		P54976	rhodobacter
36	130.5	8.3	347	1	FPPS_NEUCR		Q92250	neurospora
37	129	8.2	359	1	GGPP_MYCTU		Q50727	m probable
38	128.5	8.2	349	1	FPPS_KLULA		P49349	kluveromyc
39	126.5	8.1	367	1	FPPS_CHICK		P08836	gallus gall
40	123	7.9	384	1	FPP1_ARATH		Q09152	arabidopsis
41	122.5	7.8	282	1	ISPA_BUCAI		P57537	buchnera ap
42	121.5	7.8	294	1	ISPA_BUCAP		Q8k9a0	buchnera ap
43	120	7.7	289	1	CRTE_RHOCA		P17060	rhodobacter
44	120	7.7	302	1	CRTE_PANAN		P21684	pantoea ana
45	119.5	7.6	352	1	FPPS_YEAST		P08524	saccharomyc

ALIGNMENTS

RESULT 1

GGPP_HUMAN

ID GGPP_HUMAN STANDARD; PRT; 300 AA.

AC 095749;
 DT 30-MAY-2000 (Rel. 39, Created)
 DT 30-MAY-2000 (Rel. 39, Last sequence update)
 DT 10-OCT-2003 (Rel. 42, Last annotation update)
 DE Geranylgeranyl pyrophosphate synthetase (GGPP synthetase) (GGPPSASE)
 DE (Geranylgeranyl diphosphate synthase) [Includes:
 DE Dimethylallyltransferase (EC 2.5.1.1); Geranyltranstransferase
 DE (EC 2.5.1.10); Farnesyltranstransferase (EC 2.5.1.29)].
 GN GGPS1.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 OX NCBI_TaxID=9606;
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 RP SEQUENCE FROM N.A.
 RC TISSUE=Fetal heart;
 RX MEDLINE=98412715; PubMed=9741684;
 RA Ericsson J., Greene J.M., Carter K.C., Shell B.K., Duan D.R.,
 RA Florence C., Edwards P.A.;
 RT "Human geranylgeranyl diphosphate synthase: isolation of the cDNA,
 RT chromosomal mapping and tissue expression.";
 RL J. Lipid Res. 39:1731-1739(1998).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Testis;
 RX MEDLINE=99150380; PubMed=10026212;
 RA Kuzuguchi T., Morita Y., Sagami I., Sagami H., Ogura K.;
 RT "Human geranylgeranyl diphosphate synthase. cDNA cloning and
 RT expression.";
 RL J. Biol. Chem. 274:5888-5894(1999).
 RN [3]
 RP SEQUENCE FROM N.A.
 RA Misawa N., Okazaki H., Noguchi Y., Tatsuno I., Saito Y., Yasuda T.,
 RA Hirai A.;
 RT "Study on isolation of a geranylgeranyl pyrophosphate (GGPP) synthase
 RT cDNA and its expression - development of a new assay system of gene
 RT functions.";
 RL Proc. Jpn. Conf. Biochem. Lipids 41:293-296(1999).
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 RP SEQUENCE FROM N.A.
 RC TISSUE=Pituitary;
 RX MEDLINE=20402571; PubMed=10931946;
 RA Hu R.-M., Han Z.-G., Song H.-D., Peng Y.-D., Huang Q.-H., Ren S.-X.,
 RA Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C.-L., Fu G., Zhang Q.-H.,
 RA Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Rong R., Ye M., Zhou J.,
 RA Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M.,
 RA Huang G.-Y., Chen Z., Chen M.-D., Chen J.-L.;
 RT "Gene expression profiling in the human hypothalamus-pituitary-adrenal
 RT axis and full-length cDNA cloning.";
 RL Proc. Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).
 RN [5]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Liver, and Spleen;
 RX MEDLINE=99203156; PubMed=10101267;
 RA Kainou T., Kawamura K., Tanaka K., Matsuda H., Kawamukai M.;
 RT "Identification of the GGPS1 genes encoding geranylgeranyl diphosphate
 RT synthases from mouse and human.";

RL Biochim. Biophys. Acta 1437:333-340(1999).
 RN [6]
 RP SEQUENCE FROM N.A.
 RA Zhang M., Yu L., Hu P., Bi A., Zhang Q., Xu M., Zhao S.;
 RT "Molecular cloning and expression analysis of a novel human cDNA
 RT encoding a protein homologous to Neurospora crassa geranylgeranyl
 RT pyrophosphate synthetase.";
 RL Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
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 RX MEDLINE=22388257; PubMed=12477932;
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 RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
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 RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
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 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
 RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
 RA Fahey J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,
 RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
 RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
 RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
 RT "Generation and initial analysis of more than 15,000 full-length
 RT human and mouse cDNA sequences.";
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
 CC -!- FUNCTION: CATALYZES THE TRANS-ADDITION OF THE THREE MOLECULES OF
 CC IPP ONTO DMAPP TO FORM GERANYLGERANYL PYROPHOSPHATE, AN IMPORTANT
 CC PRECURSOR OF CAROTENOIDS AND GERANYLATEDGERANYLATED PROTEINS.
 CC -!- CATALYTIC ACTIVITY: Dimethylallyl diphosphate + isopentenyl
 CC diphosphate = diphosphate + geranyl diphosphate.
 CC -!- CATALYTIC ACTIVITY: Geranyl diphosphate + isopentenyl diphosphate
 CC = diphosphate + trans,trans-farnesyl diphosphate.
 CC -!- CATALYTIC ACTIVITY: Trans-trans-farnesyl diphosphate + isopentenyl
 CC diphosphate = diphosphate + geranylgeranyl diphosphate.
 CC -!- PATHWAY: Isoprenoid biosynthesis.
 CC -!- SUBUNIT: Homooctamer.
 CC -!- SUBCELLULAR LOCATION: Cytoplasmic.
 CC -!- TISSUE SPECIFICITY: ABUNDANTLY EXPRESSED IN TESTIS. FOUND IN OTHER
 CC TISSUES TO A LOWER EXTENT.
 CC -!- SIMILARITY: Belongs to the FPP/GGPP synthetase family.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
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 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL; AB017971; BAA75909.1; -.

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 Ser Ile Tyr Gly Ile Pro Ser Val Ile Asn Ser Ala Asn Tyr Val Tyr
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 Lys Leu Phe Thr Arg Gln Leu Leu Glu Leu His Gln Gly Gln Gly Leu
 115 120 125
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 145 150 155 160
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gys

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Lys.	Gln	Ile	Asp	Ala	Arg	Gly	Gly	Asn	Pro	Glu	Leu	Val	Ala	Leu Val
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45